

**IN THE CLAIMS:**

- 1 1. (CURRENTLY AMENDED) A method for performing a scheduling assist function, the method comprising the steps of:
  - 3 receiving a request to schedule an event;
  - 4 calculating an expiration time associated with the event using information contained in the request, the information describing an output channel;
  - 1 determining if conditions are met to issue a notification, the conditions at least
  - 2 including that the expiration time has been reached; and
  - 3 issuing a notification if conditions are met.
- 1 2. (ORIGINAL) The method of claim 1 wherein the information contained in the request comprises:
  - 3 a byte length; and
  - 4 an inverted rate.
- 1 3. (ORIGINAL) The method of claim 2 wherein the step of calculating an expiration time using information contained in the request further comprises the steps of:
  - 3 multiplying the byte length by the inverted rate; and
  - 4 adding a current time if the event is idle otherwise adding an old expiration time.
- 1 4. (ORIGINAL) The method of claim 1 wherein the step of determining if conditions are met to issue a notification further comprises the steps of:
  - 3 (a) comparing a current time to an expiration time; and
  - 4 (b) concluding the conditions are met to issue a notification if the expiration time
  - 5 is less than OR equal to the current time.
- 1 5. (ORIGINAL) The method of claim 4 further comprising before step (a) the steps of:

2        selecting an event table entry from a plurality of event table entries in an event  
3    table; and

4        selecting the expiration time from a plurality of expiration times contained in the  
5    selected event table entry.

1    6. (ORIGINAL) The method of claim 5 wherein the step of selecting an event table from  
2    a plurality of event table entries in an event table further comprises the step of:  
3        selecting the event table entry using a scanning table.

1    7. (ORIGINAL) The method of claim 4 further comprising after step (a) the steps of:  
2        determining if an output command queue associated with the event is above a  
3    threshold; and  
4        performing step (b) if the output command queue is above the threshold.

1    8. (ORIGINAL) The method of claim 4 further comprising after step (a) the steps of:  
2        determining if a flow bit associated with the event indicates busy; and  
3        performing step (b) if the flow bit does not indicate busy.

1    9. (ORIGINAL) The method of claim 4 further comprising after step (a) the steps of:  
2        determining if a notification queue can receive a notification; and  
3        performing step (b) if the notification queue can receive a notification.

1    10. (ORIGINAL) The method of claim 1 further comprising the step of:  
2        updating status information associated with the event.

1    11. (ORIGINAL) The method of claim 1 wherein the step of determining if conditions  
2    are met to issue a notification further comprises the steps of:  
3        (a) comparing a current time to an expiration time minus a notification threshold;  
4    and

5 (b) concluding the conditions are met to issue a notification if the expiration time  
6 minus the notification threshold is less than OR equal to the current time.

1 12. (ORIGINAL) A computer readable medium containing executable instructions for  
2 performing the method recited in claim 1.

3 13. (ORIGINAL) The computer readable medium of claim 12 wherein the information  
4 contained in the request comprises a byte length and an inverted rate and further compris-  
5 ing computer executable instructions for performing:

6 multiplying the byte length by the inverted rate; and  
7 adding a current time if an event is idle otherwise ad-

1 14. (ORIGINAL) The computer readable medium of claim 12 further comprising com-  
2 puter executable instructions for performing:

- 3 (a) comparing a current time to the expiration time; and
- 4 (b) concluding conditions are met to issue a notification if the expiration time is
- 5 less than OR equal to the current time.

1 15. (ORIGINAL) The computer readable medium of claim 12 further comprising com-  
2 puter executable instructions before step (a) for performing:

3 selecting an event table entry from a plurality of event table entries in an event  
4 table; and

5 selecting the expiration time from a plurality of expiration times contained in the  
6 selected event table entry.

1 16. (ORIGINAL) The computer readable medium of claim 15 wherein the step of select-  
2 ing an event table from a plurality of event table entries in an event table further compris-  
3 ing computer executable instructions for performing:

4 selecting the event table entry using a scanning table.

1 17. (ORIGINAL) The computer readable medium of claim 12 further comprising com-  
2 puter executable instructions for performing after step (a):

3 determining if an output command queue associated with the event is above a  
4 threshold; and

5 performing step (b) if the output command queue is above the threshold.

1 18. (ORIGINAL) The computer readable medium of claim 12 further comprising com-  
2 puter executable instructions for performing after step (a):

3 determining if a flow bit associated with the event indicates busy; and  
4 performing step (b) if the flow bit does not indicate busy.

1 19. (ORIGINAL) The computer readable medium of claim 12 further comprising com-  
2 puter executable instructions for performing after step (a):

3 determining if a notification queue can receive a notification; and  
4 performing step (b) if the notification queue can receive a notification.

1 20. (ORIGINAL) An apparatus configured to perform a scheduling assist function the  
2 apparatus comprising:

3 means for receiving a request to schedule an event;

4 means for calculating an expiration time associated with the event using informa-  
5 tion contained in the request;

6 means for determining if conditions are met to issue a notification; and

7 means for issuing a notification if conditions are met to issue a notification.

1 21. (ORIGINAL) The apparatus of claim 20 wherein the information contained in the  
2 request comprises:

3 a byte length; and

4 an inverted rate.

- 1 22. (ORIGINAL) The apparatus of claim 20 wherein the means for calculating an expi-  
2 ration time using information contained in the request further comprises:
  - 3 means for multiplying the byte length by the inverted rate; and
  - 4 means for adding an old expiration time if an event is idle otherwise adding a cur-  
5 rent time.
- 1 23. (ORIGINAL) The apparatus of claim 20 wherein the means for determining if condi-  
2 tions are met to issue a notification further comprises:
  - 3 means for comparing a current time to the expiration time; and
  - 4 means for concluding conditions are met to issue a notification if the expiration  
5 time is less than OR equal to the current time.
- 1 24. (ORIGINAL) The apparatus of claim 23 further comprising:
  - 2 means for selecting an event table entry from a plurality of event table entries in  
3 an event table; and
  - 4 means for selecting the expiration time from a plurality of expiration times con-  
5 tained in the selected event table entry.
- 1 25. (ORIGINAL) The apparatus of claim 24 wherein the means for selecting an event  
2 table from a plurality of event table entries in an event table further comprises:
  - 3 means for selecting the event table entry using a scanning table.
- 1 26. (ORIGINAL) The apparatus of claim 23 further comprising:
  - 2 means for determining if an output command queue associated with the event is  
3 above a threshold; and
  - 4 means for concluding conditions are met to issue a notification if the expiration  
5 time is less than OR equal to the current time and the output command queue is above the  
6 threshold.

- 1 27. (ORIGINAL) The apparatus of claim 23 further comprising:
  - 2 means for determining if a flow bit associated with the event indicates busy; and
  - 3 means for concluding conditions are met to issue a notification if the expiration
  - 4 time is less than OR equal to the current time and the flow bit does not indicate busy.
- 1 28. (ORIGINAL) The apparatus of claim 23 further comprising:
  - 2 means for determining if a notification queue can receive a notification; and
  - 3 means for concluding conditions are met to issue a notification if the expiration
  - 4 time is less than OR equal to the current time and the notification queue can receive a no-
  - 5 tification.
- 1 29. (ORIGINAL) A system for scheduling events, the system comprising:
  - 2 a processor; and
  - 3 a scheduling assist function.
- 1 30. (ORIGINAL) The system of claim 29 whereby the scheduling assist function further  
2 comprises:
  - 3 means for calculating an expiration time associated with a scheduled event.
- 1 31. (ORIGINAL) The system of claim 29 whereby the scheduling assist function further  
2 comprises:
  - 3 a plurality of tables, the plurality of tables including an event table for holding
  - 4 state associated with events; and
  - 5 means for determining if an expiration time for an event has been reached and
  - 6 issuing a notification when the expiration time has been reached.
- 1 32. (ORIGINAL) A method for determining when a packet can be dequeued to an output  
2 channel, the method comprising the steps of:
  - 3 scheduling an event associated with the output channel; and

4 receiving a notification when the output channel becomes available.

1 33. (ORIGINAL) The method of claim 32 wherein the step of scheduling an event asso-  
2 ciated with the output channel further comprises:

3 issuing a request to a scheduling assist function.

1 34. (ORIGINAL) The method of claim 32 wherein the request comprises:

2 a byte length associated with the packet; and

3 an inverted rate associated with the output channel.

1 35. (NEW) A method for scheduling an event comprising the steps of:

2 receiving, from a processor, a request to schedule an event, the request containing  
3 information describing characteristics of an output channel associated with the event;

4 calculating an expiration time associated with the event from the information de-  
5 scribing characteristics of the output channel;

6 determining if the output channel associated with the event is available;

7 comparing the expiration time with a current time and determining if the expira-  
8 tion time has been reached; and

9 in response to determining that the output channel is available and that the expira-  
10 tion time has been reached, issuing a notification to the processor, the notification indi-  
11 cating the event is to be serviced.

1 36. (NEW) The method of claim 35 wherein information describing an output channel  
2 comprises:

3 a byte length; and

4 a rate associated with the output channel.

1 37. (NEW) The method of claim 36 wherein the step of comparing further comprises the  
2 step of:

3       selecting an entry in an event table for comparison, each entry containing a plural-  
4 ity of event expiration times associated with events, and comparing the plurality of event  
5 expiration times to the current time.

1 38. (NEW) The method of claim 35 wherein the step of comparing further comprises the  
2 step of:

3       subtracting a notification threshold from the expiration time prior to comparing.

1 39. (NEW) The method of claim 35 wherein the step of determining further comprises  
2 the steps of:

3       determining if a flow bit associated with the event indicates busy; and  
4       performing the step of issuing a notification only if the flow bit does not indicate  
5 busy.

1 40. (NEW) The method of claim 35 further comprising the steps of:

2       determining if a notification queue can receive the notification; and  
3       performing the step of issuing a notification only if the notification queue can re-  
4 ceive a notification.

1 41. (NEW) A method for a processor to offload event scheduling, comprising the steps  
2 of:

3       issuing a request to schedule an event to a separate scheduling assist function, the  
4 request containing information describing an output channel associated with the event,

5 the information sufficient to calculate an expiration time for the event at the output chan-  
6 nel; and

7 when the expiration time is less than OR equal to a current time, receiving a noti-  
8 fication from the scheduling assist, the notification indicating the event is to be serviced.

1 42. (NEW) An apparatus for scheduling an event comprising:

2 means for receiving, from a processor, a request to schedule an event, the request  
3 containing information describing an output channel associated with the event;

4 means for calculating an expiration time associated with the event from the in-  
5 formation describing the output channel;

6 means for determining if the output channel associated with the event is available;

7 means for comparing the expiration time with a current time and determining if  
8 the expiration time has been reached; and

9 means for issuing a notification to the processor, the notification indicating the  
10 event is to be serviced, in response to determining that the output channel is available  
11 and that the expiration time has been reached.

1 43. (NEW) The apparatus of claim 42 wherein information describing an output channel  
2 comprises:

3 a byte length; and

4 a rate associated with the output channel.

1 44. (NEW) The apparatus of claim 43 further comprising:

1       means for selecting an entry in an event table for comparison, each entry contain-  
2       ing a plurality of event expiration times associated with events, and comparing the plural-  
3       ity of event expiration times to the current time.

1       45. (NEW) The apparatus of claim 43 further comprising:

2           means for subtracting a notification threshold from the expiration time prior to  
3       comparing.

1       46. (NEW) The apparatus of claim 43 further comprising:

2           means for determining if a flow bit associated with the event indicates busy; and  
3           means for performing the step of issuing a notification only if the flow bit does  
4       not indicate busy.

1       47. (NEW) The apparatus of claim 43 further comprising:

2           means for determining if a notification queue can receive the notification; and  
3           means performing the step of issuing a notification only if the notification queue  
4       can receive a notification.

1       48. (NEW) A computer readable medium containing executable program instructions  
2       for scheduling an event, the executable program instructions comprising program instruc-  
3       tions for:

1           receiving a request to schedule an event, the request containing information de-  
2       scribing an output channel associated with the event;  
3           calculating an expiration time associated with the event from the information de-  
4       scribing the output channel;

5           determining if the output channel associated with the event is available;  
6           comparing the expiration time with a current time and determining if the expira-  
7           tion time has been reached; and  
8           in response to determining that the output channel is available and that the expira-  
9           tion time has been reached, issuing a notification to the processor, the notification indi-  
10          cating the event is to be serviced.

1        49. (NEW) A computer readable medium containing executable program instructions for  
2        a enabling a processor to offload event scheduling, the executable program instructions  
3        comprising program instructions for:  
4           issuing a request to schedule an event to a separate scheduling assist, the request  
5        containing information describing an output channel associated with the event, the informa-  
6        tion sufficient to calculate an expiration time for the event at the output channel; and  
7           when the expiration time is less than OR equal to a current time, receiving a noti-  
8        fication from the scheduling assist, the notification indicating the event is to be serviced.